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<110> Niehrs, Christof
Wu, Wei
Glinka, Andrey
Kazanskaya, Olga

<120> Compositions for Diagnosis and Therapy of Diseases associated with Aberrant Expression of Futrins (R-spondins)

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<140> 10/575,217
<141> 2006-04-10

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<151> 2004-10-08

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caccttggaa agtgccttga caattgccca gaagggttgg aagccaacaa ccatactatg 420

gagtgtgtca gtattgtgca ctgtgaggtc agtgaatgga atccttggag tccatgcacg 480

aagaagggaa aaacatgtgg cttcaaaaga gggactgaaa cacgggtccg agaaataata 540

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Ser Ala Glu Gly Ser Gln Ala Cys Ala Lys Gly Cys Glu Leu Cys Ser
35 40 45

Glu Val Asn Gly Cys Leu Lys Cys Ser Pro Lys Leu Phe Ile Leu Leu
50 55 60

Glu Arg Asn Asp Ile Arg Gln Val Gly Val Cys Leu Pro Ser Cys Pro
65 70 75 80

Pro Gly Tyr Phe Asp Ala Arg Asn Pro Asp Met Asn Lys Cys Ile Cys
85 90 95

Lys Ile Glu His Cys Glu Ala Cys Phe Ser His Asn Phe Cys Thr Lys
100 105 110

Cys Lys Glu Gly Leu Tyr Leu His Lys Gly Arg Cys Tyr Pro Ala Cys
115 120 125

Pro Glu Gly Ser Ser Ala Ala Asn Gly Thr Met Glu Cys Ser Ser Pro
130 135 140

Ala Gln Cys Glu Met Ser Glu Trp Ser Pro Trp Gly Pro Cys Ser Lys
145 150 155 160

Lys Gln Gln Leu Cys Gly Phe Arg Arg Gly Ser Glu Glu Arg Thr Arg
165 170 175

Arg Val Leu His Ala Pro Val Gly Asp His Ala Ala Cys Ser Asp Thr
180 185 190

Lys Glu Thr Arg Arg Cys Thr Val Arg Arg Val Pro Cys Pro Glu Gly
195 200 205

Gln Lys Arg Arg Lys Gly Gly Gln Gly Arg Arg Glu Asn Ala Asn Arg
210 215 220

Asn Leu Ala Arg Lys Glu Ser Lys Glu Ala Gly Ala Gly Ser Arg Arg
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Arg Lys Gly Gln Gln Gln Gln Gln Gln Gly Thr Val Gly Pro Leu
245 250 255

Thr Ser Ala Gly Pro Ala
260

<210> 26
<211> 243
<212> PRT
<213> Homo sapiens

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Ser Tyr Val Ser Asn Pro Ile Cys Lys Gly Cys Leu Ser Cys Ser Lys
        35                  40                  45

Asp Asn Gly Cys Ser Arg Cys Gln Gln Lys Leu Phe Phe Phe Leu Arg
    50                  55                  60

Arg Glu Gly Met Arg Gln Tyr Gly Glu Cys Leu His Ser Cys Pro Ser
65                  70                  75                  80

Gly Tyr Tyr Gly His Arg Ala Pro Asp Met Asn Arg Cys Ala Arg Cys
                85                  90                  95

Arg Ile Glu Asn Cys Asp Ser Cys Phe Ser Lys Asp Phe Cys Thr Lys
            100                 105                 110

Cys Lys Val Gly Phe Tyr Leu His Arg Gly Arg Ser Phe Asp Glu Cys
        115                 120                 125

Pro Asp Gly Phe Ala Pro Leu Glu Glu Thr Met Glu Cys Val Glu Gly
    130                 135                 140

Cys Glu Val Gly His Trp Ser Glu Trp Gly Thr Cys Ser Arg Asn Asn
145                 150                 155                 160

Arg Thr Cys Gly Phe Lys Trp Gly Leu Glu Thr Arg Thr Arg Gln Ile
                165                 170                 175

Val Lys Lys Pro Val Lys Asp Thr Ile Pro Cys Pro Thr Ile Ala Glu
            180                 185                 190

Ser Arg Arg Cys Lys Met Thr Met Arg His Cys Pro Gly Gly Lys Arg
        195                 200                 205

Thr Pro Lys Ala Lys Glu Lys Arg Asn Lys Lys Lys Lys Arg Lys Leu
    210                 215                 220

Ile Glu Arg Ala Gln Glu Gly His Ser Val Phe Leu Ala Thr Asp Arg
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Ala Asn Gln
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<210> 27
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<212> PRT
<213> Homo sapiens

<400> 27

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Glu Tyr Ile Gly Ser Gln Asn Ala Ser Arg Gly Arg Arg Gln Arg Arg
            20                  25                  30

Met His Pro Asn Val Ser Gln Gly Cys Gln Gly Gly Cys Ala Thr Cys
        35                  40                  45

Ser Asp Tyr Asn Gly Cys Leu Ser Cys Lys Pro Arg Leu Phe Phe Ala
    50                  55                  60

Leu Glu Arg Ile Gly Met Lys Gln Ile Gly Val Cys Leu Ser Ser Cys
65                  70                  75                  80

Pro Ser Gly Tyr Tyr Gly Thr Arg Tyr Pro Asp Ile Asn Lys Cys Thr
                85                  90                  95

Lys Cys Lys Ala Asp Cys Asp Thr Cys Phe Asn Lys Asn Phe Cys Thr
            100                 105                 110

Lys Cys Lys Ser Gly Phe Tyr Leu His Leu Gly Lys Cys Leu Asp Asn
        115                 120                 125

Cys Pro Glu Gly Leu Glu Ala Asn Asn His Thr Met Glu Cys Val Ser
    130                 135                 140

Ile Val His Cys Glu Val Ser Glu Trp Asn Pro Trp Ser Pro Cys Thr
145                 150                 155                 160

Lys Lys Gly Lys Thr Cys Gly Phe Lys Arg Gly Thr Glu Thr Arg Val
                165                 170                 175

Arg Glu Ile Ile Gln His Pro Ser Ala Lys Gly Asn Leu Cys Pro Pro
            180                 185                 190

Thr Asn Glu Thr Arg Lys Cys Thr Val Gln Arg Lys Lys Cys Gln Lys
        195                 200                 205

Gly Glu Arg Gly Lys Lys Gly Arg Glu Arg Lys Arg Lys Lys Pro Asn
    210                 215                 220

Lys Gly Glu Ser Lys Glu Ala Ile Pro Asp Ser Lys Ser Leu Glu Ser
225                 230                 235                 240
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Arg Lys Val Gln Asp Lys Gln Lys Ser Val Ser Val Ser Thr Val His
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<210> 28
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<213> Homo sapiens

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20 25 30

Gly Asn Cys Thr Gly Cys Ile Ile Cys Ser Glu Glu Asn Gly Cys Ser
35 40 45

Thr Cys Gln Gln Arg Leu Phe Leu Phe Ile Arg Arg Glu Gly Ile Arg
50 55 60

Gln Tyr Gly Lys Cys Leu His Asp Cys Pro Pro Gly Tyr Phe Gly Ile
65 70 75 80

Arg Gly Gln Glu Val Asn Arg Cys Lys Lys Cys Gly Ala Thr Cys Glu
85 90 95

Ser Cys Phe Ser Gln Asp Phe Cys Ile Arg Cys Lys Arg Gln Phe Tyr
100 105 110

Leu Tyr Lys Gly Lys Cys Leu Pro Thr Cys Pro Pro Gly Thr Leu Ala
115 120 125

His Gln Asn Thr Arg Glu Cys Gln Gly Glu Cys Glu Leu Gly Pro Trp
130 135 140

Gly Gly Trp Ser Pro Cys Thr His Asn Gly Lys Thr Cys Gly Ser Ala
145 150 155 160

Trp Gly Leu Glu Ser Arg Val Arg Glu Ala Gly Arg Ala Gly His Glu
165 170 175

Glu Ala Ala Thr Cys Gln Val Leu Ser Glu Ser Arg Lys Cys Pro Ile
180 185 190

Gln Arg Pro Cys Pro Gly Glu Arg Ser Pro Gly Gln Lys Lys Gly Arg
195 200 205

Lys Asp Arg Arg Pro Arg Lys Asp Arg Lys Leu Asp Arg Arg Leu Asp
210 215 220

<210> 29
<211> 262
<212> PRT
<213> Homo sapiens

<400> 29

Met Arg Leu Gly Leu Cys Val Val Ala Leu Val Leu Ser Trp Thr His
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Leu Thr Ile Ser Ser Arg Gly Ile Lys Gly Lys Arg Gln Arg Arg Ile
20 25 30

Ser Ala Glu Gly Ser Gln Ala Cys Ala Lys Gly Cys Glu Leu Cys Ser
35 40 45

Glu Val Asn Gly Cys Leu Lys Cys Ser Pro Lys Leu Phe Ile Leu Leu
50 55 60

Glu Arg Asn Asp Ile Arg Gln Val Gly Val Cys Leu Pro Ser Cys Pro
65 70 75 80

Pro Gly Tyr Phe Asp Ala Arg Asn Pro Asp Met Asn Lys Cys Ile Cys
85 90 95

Lys Ile Glu His Cys Glu Ala Cys Phe Ser His Asn Phe Cys Thr Lys
100 105 110

Cys Lys Glu Gly Leu Tyr Leu His Lys Gly Arg Cys Tyr Pro Ala Cys
115 120 125

Pro Glu Gly Ser Ser Ala Ala Asn Gly Thr Met Glu Cys Ser Ser Pro
130 135 140

Ala Gln Cys Glu Met Ser Glu Trp Ser Pro Trp Gly Pro Cys Ser Lys
145 150 155 160

Lys Gln Gln Leu Cys Gly Phe Arg Arg Gly Ser Glu Glu Arg Thr Arg
165 170 175

Arg Val Leu His Ala Pro Val Gly Asp His Ala Ala Cys Ser Asp Thr
180 185 190

Lys Glu Thr Arg Arg Cys Thr Val Arg Arg Val Pro Cys Pro Glu Gly
195 200 205

Gln Lys Arg Arg Lys Gly Gly Gln Gly Arg Arg Glu Asn Ala Asn Arg
210 215 220

Asn Leu Ala Arg Lys Glu Ser Lys Glu Ala Gly Ala Gly Ser Arg Arg
225 230 235 240

Arg Lys Gly Gln Gln Gln Gln Gln Gln Gly Thr Val Gly Pro Leu
245 250 255

Thr Ser Ala Gly Pro Ala
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<210> 30
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<213> Homo sapiens

<400> 30

Met Gln Phe Arg Leu Phe Ser Phe Ala Leu Ile Ile Leu Asn Cys Met
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Asp Tyr Ser His Cys Gln Gly Asn Arg Trp Arg Arg Ser Lys Arg Ala
20 25 30

Ser Tyr Val Ser Asn Pro Ile Cys Lys Gly Cys Leu Ser Cys Ser Lys
35 40 45

Asp Asn Gly Cys Ser Arg Cys Gln Gln Lys Leu Phe Phe Phe Leu Arg
50 55 60

Arg Glu Gly Met Arg Gln Tyr Gly Glu Cys Leu His Ser Cys Pro Ser
65 70 75 80

Gly Tyr Tyr Gly His Arg Ala Pro Asp Met Asn Arg Cys Ala Arg Cys
85 90 95

Arg Ile Glu Asn Cys Asp Ser Cys Phe Ser Lys Asp Phe Cys Thr Lys
100 105 110

Cys Lys Val Gly Phe Tyr Leu His Arg Gly Arg Ser Phe Asp Glu Cys
115 120 125

Pro Asp Gly Phe Ala Pro Leu Glu Glu Thr Met Glu Cys Val Glu Gly
130 135 140

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Cys Glu Val Gly His Trp Ser Glu Trp Gly Thr Cys Ser Arg Asn Asn
145                 150                 155                 160

Arg Thr Cys Gly Phe Lys Trp Gly Leu Glu Thr Arg Thr Arg Gln Ile
                165                 170                 175

Val Lys Lys Pro Val Lys Asp Thr Ile Pro Cys Pro Thr Ile Ala Glu
            180                 185                 190

Ser Arg Arg Cys Lys Met Thr Met Arg His Cys Pro Gly Gly Lys Arg
        195                 200                 205

Thr Pro Lys Ala Lys Glu Lys Arg Asn Lys Lys Lys Lys Arg Lys Leu
    210                 215                 220

Ile Glu Arg Ala Gln Glu Gly His Ser Val Phe Leu Ala Thr Asp Arg
225                 230                 235                 240

Ala Asn Gln
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<210> 31
<211> 272
<212> PRT
<213> Homo sapiens

<400> 31

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Glu Tyr Ile Gly Ser Gln Asn Ala Ser Arg Gly Arg Arg Gln Arg Arg
            20                  25                  30

Met His Pro Asn Val Ser Gln Gly Cys Gln Gly Gly Cys Ala Thr Cys
        35                  40                  45

Ser Asp Tyr Asn Gly Cys Leu Ser Cys Lys Pro Arg Leu Phe Phe Ala
    50                  55                  60

Leu Glu Arg Ile Gly Met Lys Gln Ile Gly Val Cys Leu Ser Ser Cys
65                  70                  75                  80

Pro Ser Gly Tyr Tyr Gly Thr Arg Tyr Pro Asp Ile Asn Lys Cys Thr
                85                  90                  95

Lys Cys Lys Ala Asp Cys Asp Thr Cys Phe Asn Lys Asn Phe Cys Thr
            100                 105                 110
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Lys Cys Lys Ser Gly Phe Tyr Leu His Leu Gly Lys Cys Leu Asp Asn
        115                 120                 125

Cys Pro Glu Gly Leu Glu Ala Asn Asn His Thr Met Glu Cys Val Ser
    130                 135                 140

Ile Val His Cys Glu Val Ser Glu Trp Asn Pro Trp Ser Pro Cys Thr
145                 150                 155                 160

Lys Lys Gly Lys Thr Cys Gly Phe Lys Arg Gly Thr Glu Thr Arg Val
                165                 170                 175

Arg Glu Ile Ile Gln His Pro Ser Ala Lys Gly Asn Leu Cys Pro Pro
            180                 185                 190

Thr Asn Glu Thr Arg Lys Cys Thr Val Gln Arg Lys Lys Cys Gln Lys
        195                 200                 205

Gly Glu Arg Gly Lys Lys Gly Arg Glu Arg Lys Arg Lys Lys Pro Asn
    210                 215                 220

Lys Gly Glu Ser Lys Glu Ala Ile Pro Asp Ser Lys Ser Leu Glu Ser
225                 230                 235                 240

Ser Lys Glu Ile Pro Glu Gln Arg Glu Asn Lys Gln Gln Gln Lys Lys
                245                 250                 255

Arg Lys Val Gln Asp Lys Gln Lys Ser Val Ser Val Ser Thr Val His
            260                 265                 270
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<210> 32
<211> 224
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<213> Homo sapiens

<400> 32

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Met Arg Ala Pro Leu Cys Leu Leu Leu Leu Val Ala His Ala Val Asp
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Met Leu Ala Leu Asn Arg Arg Lys Lys Gln Val Gly Thr Gly Leu Gly
            20                  25                  30

Gly Asn Cys Thr Gly Cys Ile Ile Cys Ser Glu Glu Asn Gly Cys Ser
        35                  40                  45

Thr Cys Gln Gln Arg Leu Phe Leu Phe Ile Arg Arg Glu Gly Ile Arg
    50                  55                  60
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Gln Tyr Gly Lys Cys Leu His Asp Cys Pro Pro Gly Tyr Phe Gly Ile
65                  70                  75                  80

Arg Gly Gln Glu Val Asn Arg Cys Lys Lys Cys Gly Ala Thr Cys Glu
                85                  90                  95

Ser Cys Phe Ser Gln Asp Phe Cys Ile Arg Cys Lys Arg Gln Phe Tyr
            100                 105                 110

Leu Tyr Lys Gly Lys Cys Leu Pro Thr Cys Pro Pro Gly Thr Leu Ala
        115                 120                 125

His Gln Asn Thr Arg Glu Cys Gln Gly Glu Cys Glu Leu Gly Pro Trp
    130                 135                 140

Gly Gly Trp Ser Pro Cys Thr His Asn Gly Lys Thr Cys Gly Ser Ala
145                 150                 155                 160

Trp Gly Leu Glu Ser Arg Val Arg Glu Ala Gly Arg Ala Gly His Glu
                165                 170                 175

Glu Ala Ala Thr Cys Gln Val Leu Ser Glu Ser Arg Lys Cys Pro Ile
            180                 185                 190

Gln Arg Pro Cys Pro Gly Glu Arg Ser Pro Gly Gln Lys Lys Gly Arg
        195                 200                 205

Lys Asp Arg Arg Pro Arg Lys Asp Arg Lys Leu Asp Arg Arg Leu Asp
    210                 215                 220
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